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# Basic Bodice Blocks Development for Fitting Large-Breasted Women

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## Basic Bodice Blocks Development for Fitting Large-Breasted Women

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### Abstract

A growing number of women in the United States have a cup size larger than D. The clothing industry is not addressing these women's needs through present methods used in mass production. Hence, there is an opportunity for industry to improve the design and fit of mass produced garments for large-breasted women. This is particularly challenging for large-breasted women who still fall into a Missy-size category in terms of waist and other body measurements. Therefore, this paper proposes a new sizing system and a novel basic bodice block drafting method specifically for Missy-size large-breasted women. It was found that two additional body measurements are needed to accommodate Missy-size large-breasted women's needs. In addition, since waist dart size and placements were found to be greatly affected by cup size and apex location, they should be calculated and drafted accordingly.

### Introduction

In the United States, there is a growing number of women with a cup size larger than D (Dicker, 2013). However, these women can rarely find formal and fitted clothing such as button-down shirts in the market because most mass-produced garments are made for women with cup sizes no larger than D. Compared to Plus size large-breasted women, large breasted women whose waist and other body dimensions fall into the Missy-size category are experiencing even greater trouble finding a fitted shirt without sacrificing fit in other body areas. Moreover, comparing to Missy-sized women with small breasts, Missy-sized women with large breast have different proportions/dimensions elsewhere on their upper body such as chest thickness and shoulder slope (Yu, 2006). They also do not have the same body posture as women with small breasts, as larger breasts can cause changes, such as a curvier back (Pepin, 1947). In consideration of all the above-mentioned challenges, we propose to develop a novel sizing system and an optimized basic bodice block drafting method specifically for Missy-size large-breasted women.

### Methodology

A five-phase method was proposed and executed to achieve the above-mentioned goal:

- 1) obtain an understanding of large breast women's needs and concerns on current mass market products.
- 2) understand large breast women's body dimensions and how those dimensions change with each other.
- 3) generate a novel body measurement chart and a shirt size chart for women with cup size DD to J.
- 4) based on the proposed size chart, develop a new basic bodice block drafting method, which is suitable for non-stretchy fabrics.

5) evaluate the proposed pattern drafting method with varied shirt styles made of non-stretchy fabrics.

This paper only reports the results and findings of the third and fourth phases. Details of the other three phases will be reported in two subsequent papers.

The proposed body measurement chart was first proposed based on ISO and ASTM measurements and size standards. At the same time, we analyzed body measurements needed for basic bodice block drafting (Armstrong, 2000). We also conducted a study on how other body dimensions change with increasing bust circumference. Second, we studied and adjusted body measurements that are affected by increase in cup size. Specifically, we padded a mannequin with a 34-inch under bust circumference with different cup size bras from DD to J. Then we took all the needed body measurements accordingly. Based on the collected data, the relationship between bust circumference and other body measurements was identified and thus a complete size chart was generated. However, since we used a padded mannequin for measurements, changes in shoulder drop and back curve could not be identified.

## Results and Discussion

First, body measurements were identified that are affected by an increase in cup size, specifically: Bust arc, High shoulder point-to-apex, Apex-to-apex, Full-length, Shoulder slope, Across front, and Center front neck-to-waist. Relations among body measurements were tested and then analyzed. Second, it was found that compared to the ASTM Missy-size system, additional measurements should be taken to create a bodice block for women with large breasts. For instance, “High shoulder point-to-apex” and “Apex-to-apex” measurements are not included in the ASTM size chart or used in traditional basic block development methods but are considered significant in this study primarily because Apex location changes greatly with increased bust circumference. Similarly, waist dart size and placement were recalculated according to cup sizes. Third, a basic block drafting method was developed with all the above-mentioned modifications.

In the future, we will recruit volunteers to test the fit of varied shirt styles that are based on the basic block we developed. The goal is to create a new sizing system for shirts such that someone who is a size X in all measurements, but cup size could be able to wear an X\* or X\*\* size shirt without any fitting issues around the bust area.

## Conclusion

In the United States, many female adults have trouble finding fitted garments due to their large breast size. To solve this issue, we propose a new sizing system and a novel basic bodice block drafting method for Missy Size large-breasted women. Our findings will contribute to academic literature, as well as benefit the clothing industry. Most importantly, it will bring better design and fit to Missy-size large-breasted women who have trouble finding quality and appropriate mass-produced garments, such as fitted shirts.

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